ABSTRACT

An frequency offset message generated by a CMTS is applied by a cable modem to the actual frequency to which it is currently tuned. Quantizing error, or truncation error, occurs only once, since the offset is determined based on the actual tuned frequency. The frequency offset message is converted into a digital offset word – giving rise to quantizing error - and is then applied to another digital word that represents the currently tuned frequency.

Thus, the maximum error bound is one half of the frequency value corresponding to a frequency word change of the least significant bit. The result of applying the offset word to the current frequency word results in a new frequency word, which the cable modem retains until another frequency offset message is received and used as a basis for another frequency offset adjustment.